2001 Clean Air Excellence Awards Recipients

Clean Fuel Buses Program
Metropolitan Transit Authority New York City Transit Department of Buses; New York City and metropolitan area

The three core elements of New York City (NYC) Transit's Clean Fuel Bus Program include the purchase of hybrid-electric buses, the use of ultra-low sulfur diesel (ULSD) fuel, and the retrofitting of diesel engines. Through these three elements, the Clean Fuel Bus Program has reduced particulate and nitrogen oxide emissions, while demonstrating leadership and innovative use of technology.

NYC Transit's orders for and use of 325 hybrid-electric buses has led directly to commercial offerings of such vehicles. In addition, the NYC Transit's decision to switch its entire diesel fleet to USLD led directly to commercialization of the fuel, making it possible for other large fleets to switch to ULSD fuel as well. NYC Transit's commitment to use ULSD and to retrofit the diesel fleet with filters has allowed them to meet air quality regulations five years in advance of EPA requirements.

NYC Transit also has replaced or "re-powered" its two-stroke diesel engines with the latest four-stroke diesel engines that meet EPA's more stringent emissions standards for urban buses. The new engines are the first to use exhaust gas recirculation to reduce nitrogen oxide emissions. By using these new engines, NYC Transit is providing an important test bed to help engine manufacturers develop and perfect the technology.

Locomotive Emission Reduction System
CSX Transportation, Inc.; 48 contiguous states and Canada

For the rail industry, CSX Transportation, Inc. (CSXT) has designed, patented, installed, and made available a new Auxiliary Power Unit (APU) system. This system significantly reduces exhaust emissions from locomotive engines. Using a small 40-horsepower engine/generator combination, the APU system reduces the idling time of the main engine. APU use has reduced emissions of nitrogen oxides by 91 percent, hydrocarbons by 94 percent, carbon monoxide by 96 percent, and particulate matter by 84 percent. Fuel savings for CSXT's fleet of 3,600 locomotives is estimated to be 25 to 30 million gallons of diesel fuel per year.

CSXT will apply 800 APU systems in 2002, and anticipates applying the same quantities in subsequent years. The APU system is a retrofit for all electro-motive division manufactured locomotives and will be available throughout the rail industry.

CSXT will continue to conduct engineering research and development to further reduce air emissions within its 23,000-mile network located within 23 states, the District of Columbia, and two Canadian

Provinces.

Orbital Combustion Process
Orbital Engine Corporation, Inc.; Tecumseh, Michigan

Orbital Engine Company has developed a combustion process that achieves significant improvements in both fuel economy and emissions capabilities of gasoline engines. Using low-pressure air as a propellant, the system injects a precisely controlled, finely atomised cloud of fuel directly into the combustion chamber, thereby significantly reducing the level of unburned hydrocarbons. Marine and motorcycle customers currently using the Orbital Combustion Process in their two-stroke engines have reduced emissions by at least 75 percent, while increasing fuel economy by at least 30 percent. In an automotive application, an Orbital test vehicle demonstrated a fuel economy improvement of 13 percent, using a conventional low-cost, three-way catalyst. When combined with a lean-nitrogen oxide catalyst, the fuel economy improvement can be as high as 20 percent. Preliminary testing also has demonstrated that the Orbital Combustion Process can help in meeting EPA's ultra-low emissions vehicles regulations.

Instantly Available PC Technology
Intel Corporation; Worldwide

Intel® has developed the Instantly Available Personal Computer (IAPC), a computer that can be placed into a deep sleep state, but can be "woken up" very quickly when required. Computers with Intel® IAPC technology save energy by automatically powering down and going to sleep during periods of inactivity. Once the computer is in sleep mode, it takes less than five seconds for the computer to "wake up" and be ready for use. It is no longer necessary to power down the computer when it is not being used, and then to power on and boot the computer to use it again. Sleep power consumption is so low that the PC is silent (a fan is not required) and does not heat the air. With IAPC technology, power consumption when in standby/sleep mode is under five watts, far exceeding EPA'S ENERGY STAR® requirements of 15 watts, while still retaining full communications capabilities in sleep state.

Converting Pulp Mill Waste Gases to Useful Chemicals
Lehigh University, Georgia-Pacific Corp., and Gibson Technologies; Brunswick, Georgia

The production of pulp for papermaking generates a significant amount of methanol and mercaptans (sulfurous compounds). The paper industry collects and treats these compounds, however, treatment processes release carbon dioxide, sulfur dioxide, and nitrogen oxides into the atmosphere.

Now, an innovative process developed by Professor Israel Wachs of Lehigh University, Georgia-Pacific Corp., and Gibson Technologies, Inc., allows the paper industry to virtually eliminate these sources of carbon monoxide and nitrogen oxides while making profitable commodity chemicals, formaldehyde and sulfur dioxide, from these waste gases. A profit of $500,000 per year is estimated

for a 2,000 ton per day pulp mill.

In the United States alone, this new process could reduce carbon monoxide emissions by 4,000 tons per year, if applied industry-wide. Proportionate reductions could be achieved for sulfur dioxide and nitrogen oxides, depending on the levels encountered in the mills.

Playa Vista
Playa Capital Company, LLC; Los Angeles, California

Playa Vista is creating a community where residents will be able to manage their household needs without getting into their cars. It is doing so by designing a balance of housing, office space, neighborhood services, community uses, and open space throughout the project, and interlinking these land uses with bikepaths and pedestrian friendly sidewalks and paths.

This unique community design will be enhanced by a hybrid-powered shuttle system connecting all parts of the community to major shopping, dining, recreation, and entertainment centers within the project and nearby. An Intranet available to all residents will provide computerized access to services, thereby creating another opportunity to reduce car trips.

In addition, Playa Vista's award-winning Residential Sustainable Performance Guidelines will result in housing that is almost 30 percent more energy efficient than required by state law, further reducing pollution. It is Playa Vista's unique approach to creating a sustainable community that makes it a model for clean air "development."

Hunts Point Cooperative Truck Stop Electrification Project
Con Edison and Clean Air Communities; Bronx, New York

The Hunts Point Cooperative Market (The Market) is one of the world's largest produce and meat markets. Approximately 80 percent of the New York metropolitan area's produce and 40 percent of the region's meat is transshipped through The Market. There are approximately 20,000 diesel truck trips into and out of the Hunts Point neighborhood each week, with hundreds of diesel vehicles idling at The Market each day.

The truck stop electrification project will allow trucks to connect to an electrical source that will keep heating and refrigeration units running while the truck is turned off. Refrigerated trucks will stay cool and their drivers will stay comfortable while waiting to pick up or deliver loads without having to unnecessarily idle the vehicle. At full operation, the 32-bay project is expected to eliminate 2,300 tons of air pollutants annually. This project is funded through Clean Air Communities, a non-profit group that teams with community groups, government, and corporations to bring clean air technologies to urban neighborhoods.

Tour de Sol: The Great American Green Transportation Festival
Northeast Sustainable Energy Association; Northeast U.S.

The Tour de Sol Festival is a unique, year-round public education campaign that culminates in a series of festivals linked by a road-rally competition.

The program educates consumers about transportation and environmental decisions. Festivals and exhibits of environmental-friendly vehicles inspire decision-makers, school children, and the public to take personal action. Such actions may include purchasing a less polluting vehicle when shopping for a new car and choosing other transportation options such as walking, biking, and mass transit.

Annually, over 40,000 people attend Tour de Sol festivals, and 50 to 90 million learn about the festivals and transportation options through the media. Clean air solutions are promoted through the festivals, the official program, a public relations campaign, school curricula and workshops, and the Northeast Sustainable Energy Association's web site (www.nesea.org).

Save Planet Polluto
Sacramento Metropolitan Air Quality Management District; Sacramento, California

Save Planet Polluto is an innovative CD-ROM adventure designed to teach air pollution concepts to children in grades four through eight. The highly creative educational adventure involves a visit to a mythical planet that has a serious air pollution problem. The adventure is comprised of various environments, colorful characters, and lessons to be learned. Each environment has a learning goal that must be mastered before moving to different locations on the planet.

Save Planet Polluto teaches children that mobile sources are a major source of air pollution and shows them how the choices people make every day can have a positive or negative effect on air quality. By attaining the "Orb of Knowledge" and showing the "Pollutonians" how to change their polluting ways, children will be better-educated about air quality issues, which they may incorporate into their parents' lives and their own lives as they approach driving age.

Great Stove and Fireplace Changeout
Hearth Products Association and four regional affiliates; Great Lakes Region

The Great Stove and Fireplace Changeout was a co-operative public/private program designed to educate residents of the Great Lakes states about the impact of woodsmoke on toxic loading in the Lakes (specifically Benzo(a)Pyrene levels). The program introduced residents to the concept of persistent bioaccumulative toxins and lower emitting options for home hearths. As part of the program, the Hearth Industry offered a discount to any resident who surrendered an old woodstove or fireplace insert for destruction. Press events were held in St. Paul, Minnesota; Lansing, Michigan; and Madison, Wisconsin to kick off the three-month program.

During the program, 49 television and radio media outlets carried the story and over 80 newspaper stories were published. According to the 120 participating retailers, over 1,200 old woodstoves and woodstove inserts were removed and destroyed. Results also indicate that 40 percent of the households switched from wood heat to gas and the other 60 percent moved to EPA-certified woodstoves or pellet stoves. The reduction in Benzo(a)Pyrene annual emissions is estimated to be at least 4,870 grams per year.

American Indian Air Quality Training Program
Institute for Tribal Environmental Professionals; Flagstaff, Arizona

Since 1992, the Institute for Tribal Environmental Professionals (ITEP), based at Northern Arizona University in Flagstaff, has offered air quality management education and support to Indian tribes. ITEP's American Indian Air Quality Training Program provides comprehensive air quality management training through workshops tailored to address tribal needs. To date, nearly 800 individuals representing more than 200 tribes have attended ITEP workshops. ITEP also provides air-management technical support and problem-solving assistance to tribes and is a clearinghouse for tribal air quality data.

The Institute's Tribal Air Monitoring Support center, a partnership between tribes, ITEP, and EPA, further expands tribal support by providing hands-on technical training and assistance in air quality monitoring.

Through its Environmental Education and Outreach Program, ITEP exposes Native American students to scientific concepts, encouraging a new generation of tribal members to pursue environmental careers.

Air Adventures Puppet Show and Music Video
North Carolina Department of Environment and Natural Resources-Division of Air Quality; North Carolina

The North Carolina Department of Environment and Natural Resources created the Air Adventures Puppet Show and Music Video to educate children about ozone and air quality. The puppet show features a well-intentioned, but misplaced, ozone monster and an Air Avenger, the hero, who carries the monster up to the ozone layer. Throughout the puppet show video, children are exposed to the concepts of air pollution, specifically ozone, and are educated about its effects on people and vegetation. In addition, children are taught common actions that can be taken to reduce ozone formation and are introduced to the Air Quality Index (AQI) color codes.

The Air Avenger theme song music video reviews the AQI color codes and tips for reducing air pollution in a sing-a-long format. The puppet show and music video are distributed to teachers along with complementary Air Avenger coloring books and crayons.

Texas Natural Resource Conservation Commission MeteoStar System
Texas Natural Resource Conservation Commission; Austin, Texas

The Texas Natural Resource Conservation Commission (TNRCC) MeteoStar System is an automated, quality-controlled environmental data collection and reporting system that displays both near real-time and historical data on easy-to-use Internet web pages. The MeteoStar System collects air and water quality data every five minutes at monitoring sites located throughout Texas.

The MeteoStar System allows the TNRCC to educate the public through the Internet by providing important information about environmental conditions that could affect human health. Several thousand users have subscribed to the MeteoStar e-mail ozone forecast and alert notifications. The System is also used to create and display animated maps that show ozone movement.

The simplicity and efficiency of the MeteoStar System has allowed the TNRCC to expand its monitoring network from 32 air monitoring stations to over 150 air and water monitoring stations without added labor costs. The System was developed and is maintained by IPS MeteoStar.

***Tally the Toucan* Rideshare Education Program**
Palm Tran; West Palm Beach, Florida

Palm Tran, the transit agency that provides bus service for Palm Beach County commuters, has developed the *Toucan Rideshare Education Program.* This Program is designed to teach children from kindergarten through fifth grade about the environment as it relates to public transportation (bus, car pooling, and the train).

The *Toucan Rideshare Education Program* has been very successful in reaching school children. In spring 2001, the Program gave over 83 presentations to more than 2,000 students in 14 schools. Children learned how public transit affects the environment and how to use public transportation. Partnering with South Florida Commuter Services, the Florida Department of Transportation, and the Palm Beach County School Board, Palm Tran has been successful in teaching potential drivers about the benefits of using public transportation and ridesharing.

Minnesota E85 Project
Minnesota E85 Team; Minnesota

The private-public Minnesota E85 Project provides motorists a competitive, bio-based gasoline alternative that is better for air quality, the economy, and national energy security. E85 is an alternative fuel blend of 85 percent ethyl alcohol (ethanol) and only 15 percent petroleum. This alternative fuel is designed for use in many new car models, or flexible fuel vehicles, which may fuel on any combination of E85 and/or gasoline. Minnesota leads the nation with 65 E85 stations servicing an estimated 70,000 E85-capable flexible fuel vehicles. In two years, E85 sales in the state have grown by 600 percent.

The E85 Team is educating motorists, encouraging them to make a "Clean Air Choice." The BetterFuels newsletter, school materials, a web site (www.CleanAirChoice.org), and an E85 TV commercial and news broadcasts help spread the word about this alternative fuel.

E85 stations are provided signage, point-of-sale materials, and forgivable loans for fueling equipment. Twenty "Free E85" events in 2001 delivered motorists full-service fill-ups and introduced people to E85's energy, economic, and environmental benefits.

Indiana Nitrogen Oxides Control Rule
Indiana Department of Environmental Management; Indiana

The Indiana Department of Environmental Management has incorporated an incentive program in its Nitrogen Oxides Control Rule to encourage clean and efficient sources of power.

The program sets aside two percent of Indiana's total nitrogen oxides emissions budget to be awarded annually to new and existing projects that demonstrate leading-edge processes that reduce energy demands. These projects include wind and solar projects, fuel cells, and combined heat and power projects that meet an established efficiency standard. The most energy efficient projects receive the highest priority. The program also rewards existing facilities that are highly efficient through the budget allocation process.

Indiana is the only state in the Midwest to include this progressive provision in its Nitrogen Oxides Control Rule. Of the five states with a comparable incentive program, Indiana's is the second largest.

Diesel Solutions
Puget Sound Clean Air Agency and Partners; Puget Sound Region, Washington

The Puget Sound Clean Air Agency and its partners developed the voluntary Diesel Solutions program to make diesel vehicles cleaner. Working with EPA's Office of Transportation and Air Quality's Retrofit Team, the partners are using retrofit technologies to reduce fine particle, hydrocarbon, and toxic emissions up to 90 percent.

Key program partners sharing the award include: 1) King County, using ultra-low sulfur diesel fuel in its transit fleet and retrofitting 800 buses; 2) City of Seattle, using the cleaner fuel in its municipal fleet and retrofitting 400 vehicles; 3) The Boeing Company, switching its regional fleet to ultra-low sulfur diesel and retrofitting 70 trucks; 4) Pacific Rim Enterprise Center and Emerald City Disposal, piloting fuel use and retrofits for an urban waste hauling fleet; 5) Everett School District and Durham School Services, retrofitting 25 school buses; and 6) Phillips Petroleum, supplying the fuel five years earlier than required by EPA regulations.

Experiences shared by these partners can easily be used in other urban areas across the country.

Merck Project XL
Merck & Co., Inc.; Elkton, Virginia

Merck, along with the National Park Service, the Virginia Department of Environmental Quality, EPA, and members of local communities developed a simplified air permit for the Merck Stonewall Plant in Elkton, Virginia. This permit establishes a cap on site-wide emissions of total criteria pollutants. The cap is set at 20 percent less than the recent actual level of those emissions. In exchange for this voluntary commitment, the plant receives the authority to make changes to its manufacturing and support processes without prior approval by the permitting authority.

The environmental benefits result from the conversion of the plant's steam generating powerhouse, which formerly burned coal, to natural gas. This conversion has enabled Merck to operate under the emissions cap. After the first year of performance, actual emissions have been reduced by over 1,300 tons per year.

City of Los Angeles Energy Climate Action Plan
City of Los Angeles Environmental Affairs Department; Los Angeles, California

The City of Los Angeles' Energy Climate Action Plan (CAP) exemplifies how government agencies can examine their activities and take concrete, cost-effective, and comprehensive actions that save money and reduce environmental impact. Adopted by the Mayor and City Council in March 2001, the Los Angeles Energy CAP demonstrates how Los Angeles will reduce its carbon dioxide emissions by 30 percent from 1990 to 2010, while also lowering its energy costs.

The Plan includes strategies to aggressively pursue energy efficiency in City buildings, fleet vehicles, and equipment. The Plan also calls for significantly reducing the City's reliance on fossil-fuel generated power by purchasing renewable resources to meet a portion of the City's electricity needs. Additional strategies include replacing nearly half of the City's 15,000 conventionally-fueled vehicle fleet with cleaner alternatives and planting approximately 150,000 trees throughout the City. The Plan also quantifies the significant energy benefits and emission reductions from the City's recycling, transit, and water conservation programs.

Los Angeles to Pasadena Metro Blue Line
Los Angeles to Pasadena Metro Construction Authority; Los Angeles County, California

The Los Angeles to Pasadena Metro Construction Authority is building a 13.7-mile electrically powered light rail transit system. This system will improve air quality by both reducing commuter congestion from the freeway network and freeing trucks and buses traveling along the same corridor from this congestion.

To enhance ridership, the Authority is fostering development at a few of the light rail stations. This development will include housing, which will further facilitate use of the mass transit system.

By using the design-build method of construction, the Authority will be able to complete the project quickly with an easily controllable budget. The project models how transit construction can be an easily implemented way to improve air quality.